

The Dairy

DAIRY INSPECTION.

At the meeting of the City Council on Friday last, a public hearing on the proposed milk inspection bill was had. The Dairyman's Association was represented by an attorney, who said they were in favor of an inspection law, but were not in favor of inspection under the control of the Board of Health. Surely the Board is the most appropriate body to have charge of dairy inspection, and no other means of inspection, or appointment of inspectors, will have the full confidence of the general public. The subject of the sale of pure milk, sent out from well-conducted and sanitary dairies, is one which intimately concerns the public health, and to guarantee those conditions nothing but control by the Board of Health will be acceptable to the community at large. There is no wish to unduly harass an important industry, but some men engaged therein do not seem to fully recognize their responsibilities so far as the public health is concerned, and it is necessary some stringent measures be taken to convince them that the health of the community comes immeasurably before the private interests of the milk dealer.

UNSANITARY DAIRIES.

The St. Louis Board of Health last week declared eight city dairies unsanitary and ordered the places cleaned and reconstructed according to law. This is a good start. Now if the other 292 will be renovated and rehabilitated, work may begin on unsanitary dairies outside of the city. In time St. Louis may get good milk.

An illustration of the desire for cheapness and its results is furnished by the St. Louis city hospital.

Dr. H. L. Nietert, superintendent of the hospital, has made complaint to Health Commissioner Dr. Max C. Starkins that the milk delivered at the institution last week was far below the standard. Hereafter the milk has been furnished by reliable concerns, and the quality was good. On Monday, however, a new contract went into effect, the milk being furnished by a dairy located on South Broadway, the firm making the lowest bid, it being one-half cent per gallon less than the next highest bid. A chemical analysis has been made of the milk by Dr. C. Fischer, consulting pathologist of the hospital, who found that the specific gravity was 1.028, when it should not be lower than 1.032. The milk was found to be deficient in solids and to be adulterated with water.

Dr. Nietert stated that milk was the most important food furnished to the patients at the hospital, and that it was necessary to have it good. He also thinks that the contract should always be let to some party or firm that has some standing in the city and a reputation to maintain.

When city institutions as well as individuals learn that a low price invariably means low quality, and that the best "cheapness" they will begin to live with less annoyance and discomfort as well as profit.

DAIRYING IN MISSOURI.

Prof. C. H. Eckels of the Missouri Agricultural College, in addressing the dairy meeting held recently at Orchard Farm, Mo., said many Missouri farmers were thinking seriously of the dairy business as a means of keeping up the fertility of their farms. If it be true, as had been stated, that the locality around Orchard Farm was the garden spot of the world, the farmers there may not see at present so much need of conserving the fertility of the soil as do those in other sections. History tells how in all lands the soil has been impoverished by growing wheat, and then built up by stock raising and dairying. It was so in Iowa, where wheat used to be largely grown; but the time came when the land had become so poor that the farmers could not produce enough wheat to supply the home needs. They then went into dairying, and now the land is as rich as it ever was.

By means of a chart the professor showed the amount of soil fertility that was taken out of the land by the different farm crops, and brought out the fact that dairy products take less fertility from the soil than any other class of farm products. A ton of butter, worth on the market \$400, will take from the farm only a few cents' worth of soil fertility, while a ton of wheat that will bring the farmer about \$25, will carry away from the farm nearly half that amount in value of plant food when bought in the form of commercial fertilizer.

Can dairying be made to pay on high-priced land? In answer to this question the professor said the highest-priced lands in the world were used for dairying, because that was what paid best. On the Jersey Islands, land rents for \$50 to \$60 per annum, yet is devoted almost entirely to dairying. Land in the famous Elgin dairy district sells as high as \$150 per acre.

The professor did not think it necessary to dwell on the advantages of dairying, but more important to discuss how to make dairying pay. The profit would come, he said, by increasing the production per cow and decreasing the cost. The great proportion of the cows even in well-advanced dairy communities were unprofitable because they gave so small an amount of milk. He had been told the day before of a cow owner near Winfield that had given more than 11,000 pounds of milk in ten months, and which had brought \$120. Probably the cows of the neighborhood did not average over 4,000 pounds of milk a year, making a return of about \$20 per cow if the milk was sold for shipment to St. Louis. Small as this is, it is much more than is received by the man who keeps his cows just for their calves. But dairying must have better than the average of cows.

By means of a chart the professor showed of cows were illustrated, and that form of cow shown which could be expected to

General Debility

Day in and out there is that feeling of weakness that makes a burden of itself. Food does not strengthen. Sleep does not refresh. It is hard to do, hard to bear, what should be easy, vitality is on the ebb, and the whole system suffers.

For this condition take

Hood's Sarsaparilla

It vitalizes the blood, gives vigor and tone to all the organs and functions, and is positively unequalled for all run-down or debilitated conditions.

Hood's Pills cure constipation. 25 cents.

give good yields of milk. The yield, however, was not wholly dependent on food or breeding. Good care and proper feed have much influence. He would undertake to increase the yield of milk of the cows of the county from the present probable average of 4,000 pounds per year to 5,000 pounds by simply giving good care and feeding well. He was of the opinion that in a community like this, where they had so good a market as St. Louis for milk, they should use the special dairy cow and pay little attention to calves, except possibly for veal.

It would not be advisable for the farmers to get enthusiastic and buy a lot of cows. One had better go slow unless he has had experience. The cheapest way to build up a herd is to get a good bull of dairy breeding and save the heifer calves from the best cows.

We don't want cows that give large amounts of milk for a short time, and dry up. We want cows that will give milk well, but weigh the milk and know exactly. In buying a cow, one should look for the dairy type, for a good dairy cow will show the fact more or less distinctly by her form and characteristics. So if one has in mind the milk that a good dairy cow he is better able to select those that will be profitable.

A good dairy cow will be wedge-shaped, horizontally and vertically, have wide hips, a good stomach, large udder, be spare, rough and inclined to be thin when giving milk. She must have large digestive power, large udder, well developed forward and aft, and one that collapses when full. The under surface should be flat. The milk veins should be prominent and very winding, with large openings when they pass through the wall of the stomach. The neck should be long and thin; thighs thin and not beef down to the hock, as in cows of the beef breed. The eyes should be large, mild and prominent and wide apart, and face inclined to be dish. No one point will determine the value of a cow.

A COMPREHENSIVE TRIBUTE TO THE COW.

At a farmer's institute in West Park, California, Mrs. R. W. Rhea read a very interesting paper on the dairy industry and the part it has played in the development of the wealth and civilization of California. The following just and comprehensive tribute to the cow was the closing part of her address.

No animal is so pre-eminently practical as the cow. Of all God's animal gifts to man she is the greatest. To her we owe the most. Examine into all the different ramifications and channels of our commerce into which she enters, and note the result should she be blotted out. A Sunday stillness would then pervade the great stockyard industries of our large cities, and grass would grow in the streets. Seventy-five per cent of the great freight trains that cross the continent from ocean to ocean would be sidetracked, for there would be nothing for them to do. Fully 50 per cent of the laborers of America would draw no pay on Saturday night, and our tables would be bare of the greatest luxuries with which they are now loaded. There is not a part of her, from nose to tail, but what is utilized by man. We use her horns to comb our hair, her hair keeps the plaster on our walls, her skin is used for shoes and our horse's backs, her hoofs are made into glue, her tail makes soap. She gives us our milk, our cream, our butter, and her flesh is the great food of all nations.

Her blood is used to make our sugar white, and her bone, when ground, makes the greatest fertilizer, and in her pail she herself has put through the first process for the manufacture of the best white board paper. And it has been discovered that the most lasting material for false teeth. No other animal works for man both day and night. By day she gathers the food and when we are asleep at night she brings it back to reheat and manufacture into all the things of which I speak. She has gone with man from Plymouth Rock to the setting sun. It was her sons who broke the first sod in the settler's clearing. It was she who gave the pioneer the prairie schooner for the sturdy pioneers, as inch by inch, they fought to prove that "westward the star of empire takes its way," and the old cow grazed along behind, and when the day's march was done, she came and gave the milk to the babe, that was perchance to become the ruler of his country.

"Who says that what we are, we do now owe to man's best friend, the cow?"

THE SPECIAL PURPOSE COW.

Prof. T. L. Haecker of the Minnesota Experiment Station has in a convincing way contributed the following to the long list of evidence demonstrating the fallacy of a combination of beef and dairy production in the same cow. He says: "We have time and again shown by careful experimental work the advantage of employing cows in dairying that are specially adapted for dairy work. Farmers are slow to change to the dairy-bred cows, first, because, as a rule, they are smaller than those bred for beef, and, second, because the beef combine and those who are working in its interests have persistently misrepresented the value of a dairy bred steer as a meat producer, and have conspired to prejudice the feeder and butcher against them."

If farmers would keep more careful records of the performances of the different animals in the herd they would soon discover that it is invariably the dairy type cows in the herd that are the money makers.

To show the difference in the returns from the dairy and the common cow he submits two years' records, value the net return to the farmer for butter at 15c per pound, and skim milk at 15c per 100 pounds:

	Lbs.	Lbs.
Dairy-bred cows—	Milk.	Butter.
First year	5,294	446
Second year	5,830	460
Average per year	5,432	453
Value of butter and skimmed milk, per cow		\$79
Cost of feed, per cow		27
Net return		\$52

	Lbs.	Lbs.
Common cows—	Milk.	Butter.
First year	5,318	308
Second year	5,240	271
Average per year	5,259	289
Value of butter and skimmed milk, per cow		\$52
Cost of feed, per cow		25
Net return, per cow		\$27
Difference in favor of dairy cow		\$25

FOOD VALUE OF MILK.

The Illinois Agricultural Experiment Station, in a recent bulletin on the milk supply of cities, says:

Milk furnishes all the constituents necessary to nourish the body, keep it in repair, and furnish warmth and energy for work. A quart of average milk will furnish about the same amount of nutrition as three-fourths of a pound of meat; and if its true food value were fully appreciated, milk would be used much more freely than it now is, to the advantage of both the health and economical sustenance of the people. Each person consumes an average of twenty-five and a half gallons of milk in a year, or an ordinary tubful every day. Although this is one of the great dairy countries of the world we do not consume more than one-third the amount of milk, per capita, that is used in some European countries. In this country it is generally used as a condiment in tea or coffee, on berries and fruit, or for a beverage when drunk at all, and not as a regular article of food as bread, meat, and potatoes.

Many who understand that milk varies in composition think its food value is based entirely upon the amount of butterfat which it contains. While it is true that the fat in milk is a very important factor, it is also true that skim milk containing little or no fat has yet a high food value. Skim milk has practically the same composition as whole milk, with the exception of the butter fat which has been removed in the cream, and for supply the food she must have to make her profitable to the owner in his hour of need. If the dairyman wishes to make his business profitable and attractive and will exercise intelligence and good business sense, no branch of agriculture will pay what special dairymen will on the farm.

An acre of corn will produce sixty bushels of ears or thirty bushels of shelled corn, and at 20 cents per bushel will give the farmer for his labor \$6. If cut green from the hill in the soiling stage will weigh fifteen tons or 30,000 pounds, and will feed twenty-five cows thirty days. Provided the cows give only five quarts of milk twice a day you will secure from your acre of corn 15,000 pounds of milk. At 70 cents per hundred this acre of corn converted into milk by your herd of cows is worth \$105; which would have sold at the elevator for \$6. And in disposing of the crop at the elevator your land becomes poorer and will yield a smaller crop next year. But with the \$105 received from your crop disposed of green to the cows she leaves you something more to make a larger crop next year. Now, my fellow farmers, answer me the question to yourself thoughtfully. Can you spend your time on the farm at anything that will pay you one-half the money that green corn and oats will, fed to your cows after the flesher come? If you pause to think before you answer, you will answer no!



THE THREAD OF FATE.

This statue group will occupy a position at one side of the great central doorway of the Textiles Building. It is the work of Mr. Robert Brinckhurst, who also designed the Quadriga shown in last week's RURAL WORLD. The companion piece is "The Flight of Time," which we will give our readers at some future date. The symbolic value of time is so interwoven with that of spinning that the two seem almost inseparable. From the earliest ages the life of man has been represented as a thread that is spun, woven into a pattern, and then cut off. The winged figure of Fate corresponds with that of Father Time, and the wheel of fortune takes the place of the hour glass.

Why, then, not, apply your time and attention on the farm to that which will enable you and your good, faithful wife to retire the quickest from your hard work, and rest and take your comfort in your old age and let the boys take your place.

If the corn crop alone is used for summer soiling it will be a great mistake because the flesher come July 1 and the cows will shrink one-half in their milk before green corn is available for feed. This shrinkage may be prevented from going farther, but the cow cannot be restored to her original flow because she is advancing in the period of gestation. She could, however, have been prevented from only a very slight shrinkage in milk if one man at least had got around this difficulty by mixing carbollic acid in salt and allowing cattle to lick the mixture at will. He says that this plan has given as good results as drenching, and we would advise our readers to try it when there is need of salt. The acid should be mixed in the salt in the proportion of one and one-half drachms of acid to one pound of salt. If the cattle will take a sufficiency of this mixture to get enough carbollic acid, it is a good plan, but if they do not care for it, then it would be necessary to give the customary preventive dose (which is half a drachm twice daily every other day) mixed in food or as a drench in water. At the same time it is to be remembered that the carbollic acid treatment is not sufficiently reliable to do away with the advisability of other means. As the germ may enter the body at the vulva it is necessary to sponge the vulva, tail and hind quarters occasionally, and the oftener the better in bad outbreaks, and also to treat the sheath of the bull in the same way. The latter treatment is imperative for the reason that the bull when allowed

to run on clover pasture during the summer, being given milk to drink and small feed of corn each day, will, when fall comes, be in the best condition to finish for market. They will have made a good growth of bone and lean meat, and, being finished off with corn and milk, will make superior pork either for home use or for market.

The best pork is made with the materials to be found on every dairy farm. Milk, shorts or bran and corn can be compounded into a ration for pigs that will fit them for butchering and cutting up into delicious hams, shoulders and bacon. If the dairyman goes one step higher and starts out to breed pure-bred pigs for stock purposes, he may look for good results, for pigs fed on clover pasture and fed bran, shorts and milk will make the best breeding stock that could be produced. They will have good bone,

strong muscles and good health, insuring vitality and the production of such stock as is needed and is in demand in those sections where a long course of breeding corn-fed stock has brought lack of vitality and liability to disease to such an extent that breeders must go away from home to procure breeding stock.

PREVENTING ABORTION.

A good deal has been said on several occasions in this department regarding the subject of contagious abortion and its prevention, says a farm contemporary, but many seem to consider the work of stopping an outbreak too much to undertake. It strikes us that although there is indeed a deal of work entailed in carrying out a systematic attack on contagious abortion, it pays for the trouble and should in every instance be engaged in thoroughly. Some say that carbollic acid cannot well be given to cattle when going upon grass, as the animals cannot be drenched without stalling, but one man at least has got around this difficulty by mixing carbollic acid in salt and allowing cattle to lick the mixture at will. He says that this plan has given as good results as drenching, and we would advise our readers to try it when there is need of salt. The acid should be mixed in the salt in the proportion of one and one-half drachms of acid to one pound of salt. If the cattle will take a sufficiency of this mixture to get enough carbollic acid, it is a good plan, but if they do not care for it, then it would be necessary to give the customary preventive dose (which is half a drachm twice daily every other day) mixed in food or as a drench in water. At the same time it is to be remembered that the carbollic acid treatment is not sufficiently reliable to do away with the advisability of other means. As the germ may enter the body at the vulva it is necessary to sponge the vulva, tail and hind quarters occasionally, and the oftener the better in bad outbreaks, and also to treat the sheath of the bull in the same way. The latter treatment is imperative for the reason that the bull when allowed

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WATER AND GRANULES IN BUTTER.

The Wisconsin station studied the effect of the size of the butter granules on the water in butter. About 900 pounds of ripened cream was divided into two lots, one of which was churned in a box churn until the butter granules were about the size of a clover seed, while the other lot was churned in a combined churn and worked until the butter granules were about the size of corn grains. Both lots were salted and worked to the same extent, except that one was worked on a table worker and the other in the combined churn and worker. Eleven trials of this kind were made. The average water content of the butter churned to large granules was 13.28 per cent, and of the butter churned to small granules was 12.15 per cent.

SAY MILK IS TOO CHEAP.

The Milk Producers' Protective Association of Illinois and Missouri met at the Lindell Hotel in St. Louis, recently and inaugurated a movement to extend and develop the organization. Officers present were: E. J. Furbeck, Alton, Mo., president; L. S. Dorsey, proxy for Vice President A. D. Bevins, Bunker Hill, Ill., and William A. Fischer, No. 812 North Third street, St. Louis, secretary. A Railroad Committee, or a committee of gentlemen, one of whom lives on each railroad in the territory where most of the Association's business is transacted, was appointed to look after the matter of securing members. The committee is as follows: A. H. Mercer, Bunker Hill, Ill.; Robert C. Morris, Jr., Formosa, Ill.; R. Hirschfeld, Caryle, Ill.; C. A. Olmstead, St. Paul, Minn.; William Hagerman, Orchard Farm, and G. Nettemyer, Alton, Ill.

MILK AND SOCIETY.

Amusing complications have resulted from Mr. M. K. Twombly, of Florham, N. J., serving his fashionable neighbors with milk and cream, the surplus products of his model dairy.

Mrs. Newcomer, who took a furnished house in the exclusive suburb on May 1, hailed from a part of the country where the name of Twombly is not so well known as here, and when she asked her next-door neighbor, Mrs. S., to recommend a milkman, she became the innocent victim of Mr. S.'s fondness for practical jokes.

"Mr. Twombly is the best milkman," said Mrs. S.'s husband, who was standing by. "Just telephone your order to 38 Madison," he added, giving the number of Mr. Twombly's residence instead of the call for the farm buildings. Mrs. Newcomer called for Mr. Twombly and gave her order, which the master of Florham obligingly took down and turned over to his factor.

"What very peculiar tradespeople you have here," said Mrs. Newcomer to the S.'s next evening. "The milkman's wife called on me this afternoon. Fortunately I was not in."

Mrs. S.'s gasp cut short her joking husband's outburst of merriment, and on visitors coming in, his confession and explanation of the social status of the Twomblys was put off and forgotten.

But there was another chapter. "That milkman's wife is most persistent," was the way Mrs. Newcomer opened the subject the following evening. "She has invited us to dine with them. I had a card from her by the morning post." Thereupon Mr. S., manifesting, and his wife had to do the explaining.—N. Y. Times.

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Sharple's "Tubular" Dairy Separator.

If no agent will bring you a Sharple's Separator we will send you one for the price of \$1.00.

FREE OF COST. They give more butter than any other separator, and they are the only ones that will pay big interest on the whole milk, besides being entirely self-cleaning, and having a large capacity double with iron or brass.

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Dairymen

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FACTORY PRICES and guarantee any one of our fences will stand for 10 years. We make the best series and large fences. Send us your address. We will take pleasure in mailing you our large 16 page catalog on Ornamental Fencing, free. If you are interested in Farm Fences and our other products, write to us.

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makes a perfectly tight joint with one corrugated side lap. The corrugations are in the same plane and lap with this corrugation in, with others lap with this corrugation out, in making. Free Catalog and price list sent you on 12 cent note.

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WHITMAN'S BALING PRESSES.

Always Victorious. Buy the

Horticulture

THE GARDEN'S MESSAGE.

With my garden, hedged around
With many a fragrant flower is found,
When summer spreads her aureole,
A host of brilliant butterflies.

I know not how each rover brings
So much beauty on his wings;
I only know the dark cocoon
Once hid this joyousness of June.

Such wondrous grace is there, it seems
Like the witchery of dreams;
My eyes behold, yet I am slow
To sense the transcendental glow.

But since these things I see are true,
May not some realm I journey to
Be my all-beautiful life, while this
Is but the cruder chrysalis?

—Nixon Waterman in the Gentlewoman

HORTICULTURAL TALKS.

Correct on—In the issue of June 18, there appears a slight mistake. Should read gooseberries bring \$1.50 per crate instead of acre.

Thinning—Now is the time to begin this work. A good seedling should be left. By taking out one-third to one-half the fruit trees are overladen there will be a gain in profit with no loss in buds.

Take off the imperfect fruit. See that pears do not touch each other on the tree and are evenly distributed.

Peaches will need no thinning with us this year, being only an occasional one found on all but a few varieties. Alton and Hyalop are among the hardest varieties. Some beautiful specimens of the Alton are to be seen in our orchard at present.

Good for Cow Peas—One-half bushel of nitrate of soda scattered evenly on one acre of cow peas will double the yield and hasten maturity.

It is not too late to sow them in the orchard. It will also pay well to sow them where potatoes and other early crops have been harvested.

A New Seed—Black Soja is being tried at our place and is now bearing a heavy load of pods, while other varieties show no pods at all. It is certainly very promising at present.

Fight the Borer—Take away a little plum from around the base of peach and plum trees and see if the borer is not at work. Ashes, lime, or tobacco dust around the trees will keep out the pest.

New Raspberries—Worthy is a red variety, very vigorous and productive; berry large, firm, of excellent quality. Redfield, purple, propagates from tips; resembles New Cardinal closely but is better in quality.

New Cardinal shows more vigor and health than any other raspberry on my grounds. There is money in it for the picker as well as the grower. Merchants in our local market are eager to get it; sell readily at 25c per quart.

Cumbersome Black—Bringing in more per bush than any other black. It is a winner for all who handle it.

Kenyon is decidedly the most profitable red variety we have ever grown. Its strong points are hardiness, large size and remarkable productiveness.

Vineyard Work—Now is the time to bag the grapes to save them from rot, birds and preserve the bloom. Grapes intended for exhibition should be bagged by all means.

Young canes intended for next year's fruiting should be carefully tied up lest they become kninked and crooked, or broken off in the wind.

Always have some young wood in reserve for the next year's crop, with the exception of Norrons and a few other varieties, which do best on old wood.

Keep the vineyard free from weeds, the soil fine and loose. Varieties with weak foliage, like Golden Wonder, Cascade, etc., will be benefited by an application of nitrate of soda.

Vegetable Notes—When through with the hotbed sash-pile them away in a safe, dry place. If the frames are portable store them away promptly, and now up the weeds and manure if there are any.

Tear up the soil by the means and sow cow peas or plant late cabbage, cucumbers, tomatoes, or anything that will give a profitable late crop and be better than weeds.

Clean up the garden where the early vegetables grew. In the same way. Don't let the weeds seed.

If your hotbed frames are permanent the earth should be dug away from them, so the boards will not rot. Take out the earth and manure in the beds, mix together and pile it up nearby, where it may decompose for next season's use.

It is now time to plant corn, which, if possible, plant in some ravine where the soil is naturally moist and rich in humus.

Giant Pascal is a good variety and of easy culture.

It is now getting rather late to plant sweet potatoes, though we are still doing it at our place. Early ones will make good seed, if nothing else.

The prospect for a crop of sweets was never better than at present. The weather is favoring the weeds, but not the farmers, who are harvesting wheat.

EDWIN H. RIEHL,
North Alton, Ill., June 25, 1902.

CONDITIONS OF SUCCESS IN FRUIT GROWING.

Editor RURAL WORLD: The principal elements needed after the orchard begins to bear are plenty of moisture and food furnished in an available form throughout the season, so that when the trees begin to grow in the spring there will be no let-up until the season's growth has been completed and the new wood has been ripened up for winter. This will, to a great extent, prevent winter killing of the trees, and I believe it has more to do with the keeping qualities of the fruit than anything else, unless it be over-bearing. This was very noticeable in the college yard last year. The land there, which the orchard stands is underlaid with gravel for a hundred feet or more in depth, and coming to within eighteen inches or two feet of the surface, the reservoir beneath the trees which should hold the surplus moisture for the use of the trees in cases of emergency, has no bottom, and so in seasons like that of last year the trees suffered very greatly from a lack of moisture, and much of the fruit dropped prematurely. It was not only that the annual growth of wood was not more than one-half what it should have been. Under such conditions there may be an abundance of plant food in the soil, but in the absence of moisture the trees are unable to make use of it. Now the soil may lose its moisture in two ways—by going down so far that the roots are unable to reach it, or by evaporation from the surface of the soil and through the

leaves and growing parts of the plant. It is well known that when soil is left bare, and a hard crust is allowed to form on the surface, evaporation goes on very rapidly, and unless this loss is made good by frequent rains, it is only a question of time when the soil will become very dry and hard. It is also well known to those who have given the matter attention, that in parts of plants exposed to air, water is constantly passing off by evaporation. This is, of course, much less in the older parts of the plants than in the new, especially from the leaves, which expose a large surface to the atmosphere. In fact, this is the chief source of evaporation from all of our higher cultivated plants. It has been estimated that the evaporation from leaves is about one-third that from an equal area of water; or in other words, the evaporation from a tree twenty feet high and containing about 70,000 leaves, during the growing season, amounts to several times the rainfall upon the area covered by its branches. Not only is this true, but a large amount of moisture is also given off by the growing fruit. How necessary, then, that this supply should be kept up so far as possible, during the hot, dry months of summer in order that the fruit may continue to grow until ripened up naturally.

There are two ways by which nature may be assisted very materially in conserving the surplus moisture which has been stored up in the soil early in the season, viz: (a) by constant cultivation and (b) by mulching. These are only different methods of accomplishing the same result, and the one to be recommended will depend largely upon the conditions.

In many parts of Central and Northern Indiana and Southern Michigan, many of the best fruit-growers practice constant cultivation during the growing season as long as the trees last, so as to form a dust mulch, sowing some kind of a cover crop late in the season in order to prevent the loss of plant food by washing during the fall and winter. This undoubtedly is the best method for that section, as is shown by the abundant crops produced. But in Southern Indiana where the land is rolling, and where the soil washes badly during heavy rains, the mulch system is the only practical one to use. This is done by keeping the soil constantly covered with some kind of grass, or clover, usually grass, as too often this is done without any thought as to the effect on the soil.

In many cases the cover crops are allowed to mature and are then cut and taken off for hay, while nothing is put back on the soil to replace them. This is simply robbing the orchard to feed the stock.

It must be remembered that these cover crops serve a double purpose—to furnish plant food and to conserve moisture. It is absolutely necessary, therefore, that they be cut early and left on the soil as a mulch. This is Nature's method, and I know of some very successful orchardists in this country that have practiced this method for years, but we should remember that when we commence mulching, we must keep it up, because the roots will form too near the surface to limit of after cultivation. Then again, it should be remembered that there are two classes of cover crops, and they should be used according to the needs of the land. These are the nitrogenous and non-nitrogenous plants, and the orchardist should know the difference between them. The nitrogenous plants, such as clover, alfalfa, etc., are those which take up nitrogen from the air and store it up in the soil by means of the little nodules or tubercles on the roots. The non-nitrogenous plants, such as corn, wheat, etc., are those which take up nitrogen from the soil and store it up in the plant food already within the soil. In order to determine which of these crops is needed the orchardist has only to consult his stock. If the foliage has taken on a sickly color and the branches are not making an annual growth of at least a foot in length, it is very evident that the soil is deficient in nitrogen, and this may be obtained in the cheapest way possible by raising one of the nitrogenous plants, and plowing it under. On the other hand, if the trees are making too much growth and too little fruit, sow one of the non-nitrogenous plants, oats or rye or orchard grass, as a cover crop. In cases where plowing under is not feasible, these elements may be supplied by the commercial fertilizers. It is now "up to" the grower. The trees will tell him what they need. It only remains for him to comprehend their needs and satisfy their demands.

FERTILIZING THE ORCHARD.

After the fruit is gathered in the fall we think it the time to manure the orchard. It will not then start a rank growth to be winter killed, nor will it increase the number of fruit buds, for they are formed before that time, but it should start a good, vigorous growth in the spring, and such fruit as may form will not drop prematurely, but if the buds are not too abundant will cling to the tree and develop into fruit. If we do not manure after they have set, by spraying and trimming it is needed. We want no green barnyard manure in the orchard, but a well-rotted manure or compost heap.

Wood ashes are good fertilizers for fruit trees, supplying them with potash, phosphoric acid and lime, but when one cannot get these, a dressing of good commercial fertilizer that contains these elements will serve a good purpose. We would prefer to use this in the early spring rather than the fall. Those who live near the water will do well to use good fertilizer for an orchard or almost any other place.

STRAWBERRY LAND IN MISSOURI.

The following is from a paper read at the annual meeting of the Missouri State Horticultural Society at Eldon, by H. M. Wallace of Seligman, Mo.:

So far as I am acquainted with south Missouri lands. I find them well adapted to strawberry culture. All, or nearly all, these lands situated in the Ozark region are well suited for strawberry growing. The climate is almost perfect. The lands are very rolling, and in some places hilly, which relieves them, for the most part, from the destructive late frosts of spring which have been so disastrous to strawberry growing in the north.

These lands vary from a light sand to a heavy clay, underlaid, for the most part, with a heavy porous red clay subsoil. Some of them are very rocky, some being covered with sand rock, some with gravelly flint, which fills the soil and subsoil, making them very difficult to cultivate. Others will have a mixture of flint, sand and limestone scattered over and through them, while others will be free from rocks. The latter are, in my estimation, the most desirable lands for the cultivation of the strawberry. The most of these lands are old fields that have been cultivated for many years and therefore lack humus. This causes them to wash very badly and makes thorough and almost constant cultivation an absolute necessity if one would produce a good crop of fancy berries.

These lands have a natural underground drainage. The many springs and subterranean rivers, which rise after every heavy shower and fall very quickly when the rain ceases, give evidence of this fact. There are very many people growing strawberries on lands in South Missouri so covered with flint gravel and small stones that you can scarcely see any dirt after a heavy shower has fallen, and they are getting good results. The gravel makes a very desirable mulch and saves the expense and trouble of using straw or other material. Very many people prefer these gravelly lands to the sandy loams, for the reason that the berries grown on them are always clean and bright, no matter how hard it may rain on them. And then, too, they seem to have a brighter and richer color, possess greater firmness and a richer flavor. Whether the berries grown on these rocky lands possess some superiority to compensate for the extra expense to cultivate them is yet a debatable question with the fruit-growers of the southwest.

Lands are as yet very cheap in the Ozark country of South Missouri, and those who desire to grow strawberries or other fruits, especially peaches and apples, cannot do better than locate there.

SUN-SCALD ON APPLE TREES.

This is quite a frequent form of injury seen on orchard trees. It affects the bark on the southwest side of the trunk and appears to be confined to the main trunk, and to a lesser extent to the branches, which lean toward the northeast. It is considered a form of winter injury. The long exposed trunk receives the rays of sun at right angles, a condition favorable to the bad results following rapid alternate freezing and thawing. The bark dies and borers and fungi soon make their appearance.

The trouble often starts with the slender high-headed tree obtained from the nursery. Winds soon cause such trucks

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REVERIES OF AN APPLE.

My cheeks are plump, my glowing skin
Is flecked with red and yellow grain.
And lofty hopes arise within;
I am a most ambitious apple.

Shall I, puffed up and high of heart,
With pride I feel, but not to utter,
Be glorious into regal art,
Or sink in shame in apple-butter?

Shall I in rare roast goose's train
As dainty sauce bid joy betide her,
Or by some churlish rustic swain
Be sucked up through a straw as cider?

Alas! the pretty hopes were spoiled.
Which used its reveries to sweeten;
'Twas in a vulgar dumping boiled,
And in a dumping it was eaten.

—Henry Moore.

THE LIGHTEST OF WOODS.

Deep in the bogs and swamps of Southeast Missouri, in Dunkin and Butler counties, where the land is never dry, and water from one to six feet deep stands perpetually in the forests, there grows a rare and curious tree, says "American Gardening." The natives know it as the corkwood, or cork tree.

Science has given it a longer name, the Leitneria floridana, because it was first discovered in Florida, along the coast, from which it has long since been shipped away. Some meagre specimens of it, two to six feet high, are still found in the swamp near Apalachicola, Fla., and a few near Varners, Ark., but in both these places it is exceedingly limited in numbers, an occasional specimen being found in the swamps around Tampa Bay and along the coast.

Only in Southeast Missouri, where it reaches a height of 15 to 20 feet and a diameter of two to five inches, is it really a tree. What makes corkwood so remarkable is its exceeding lightness. Beyond a doubt, it is, as Mr. Wm. Trelease of the Missouri Botanical Garden has shown, the lightest tree in weight that grows. Its wood weighs less than cork. It is so light that the natives use it to make floats for their fishing nets. And yet its wood, though so spongy one may easily sink one's finger in it, is far tougher than cork.

The specific gravity of corkwood, as learned from careful tests made by Professor Nipher in St. Louis, is .307. The roots are even lighter than the stem; a test showed them to have the astonishingly low specific gravity of .151. A further idea of the lightness of the corkwood may be gained by a comparison with other woods. The great majority of woods range between .600 and .800. Cork itself is .240. The tree that approaches closest to the corkwood in lightness is the golden fir tree, which grows in the swamps around Tampa Bay and along the Indian River, Florida. Its specific gravity, according to Sargent, is .2618. In comparison with the corkwood, which is the lightest wood with its specific gravity of .307, may be placed the heaviest wood known, the black ironwood of Florida, whose specific gravity is 1.02.

FIGHTING CHINCH BUGS IN MISSOURI.

It is not quite correct to say that there is any practical remedy for chinch bugs under all circumstances. Of course a kerosene emulsion or a 10-per-cent solution of kerosene will kill them, but the cost when the bugs are scattered over a wide area is prohibitive. In case they are migrating in large numbers, as from a single stubble to a cornfield, and are collected on a few of the corn rows, this plan is entirely feasible. Another plan is to prevent them from passing from the wheat stubble into corn by taking advantage of the fact that they migrate invariably on foot, that even the adult bug in the migrating army does not adopt to wing readily, and that they have great difficulty in passing over a loose and unprotected soil or a dusty road. A heat rapidly kills great numbers under such circumstances. A good plan is to throw a belt around the cornfield, or at least about the sides exposed to the migrating army, row, roll and drag the belt thoroughly so as to form a deep dust mulch, and at intervals of a few feet throw deep furrows in which a log should be dragged very frequently, so as to keep the dust loose and to destroy the insects that accumulate in the furrows. The bugs will have great difficulty in crawling out of a furrow with steep and dusty walls. At times, however, the bugs will take to wing and scatter in large numbers over great areas, and under these circumstances the farmer is practically helpless. An infectious disease which is capable under favorable weather conditions of holding this pest in check, has been distributed for a number of years by several of the experiment stations of the Mississippi Valley, including the Missouri Station. We find, however, that in dry weather—the time when the bugs do their greatest damage—this disease fails to operate, and is worthless. In moist weather it is very effective, but spreads rapidly from the germs already in the soil and, after ten years' experience, we have practically abandoned the dissemination of these germs. This disease undoubtedly does much good, but, like the other remedies, cannot be relied upon under all circumstances. More can be done toward preventing a scourge of chinch bugs than in stopping it after it occurs. If the farmers will destroy the rubbish under which the bugs hibernate in winter, burn their stubbles when they are known to contain large quantities of chinch bugs and use trap crops, the result will be more satisfactory than attempting to kill the insects during the growing season.

MISSOURI EXP. STATION.

Good drainage, natural or artificial, is essential to success. Trees are impatient of wet feet.

The Apiary

SOME BEE TALK.

The first sign of spring is a bee on a maple tree; and long before the other bits of animated nature find it out, those wee little creatures are on the alert. Many a time I have seen them quietly enjoying the first sweet meats of the season, crawling up and down the gray trunk of the sugar tree, while the snow still covered the earth and its insect inhabitants. How do they find it out? How do they know that on such a day and hour Dame Nature will open her halls of pleasure, and spread the first free lunch of the season, with the sweetest and daintiest of liquid refreshments for all who may choose to partake? How does the small boy know when "marble time" is at hand, and just when it is "the thing" to doff shoes and stockings and appear in a state of nature? Who has not heard the injured one complain "It is barefoot time. Why can't I be like other boys?" Surely there must be some secret, electric sympathy between spring and sunshine and boys and bees.

The care of bees is a most delightful occupation. Poets, thinkers, philosophers, statesmen, common people, have from earliest days enjoyed the society of the cheerful little insect, and studied its curious habits. Literature is full of the honey makers, and without the bee and the hive, the blossom and the nectar, our language would be indeed bereft of its most glowing pictures. Bees are not indigenous to this country. The first mention of them in print is where certain Spaniards brought them into Florida in 1565, and until quite recently the descendants of these swarms were only to be seen in the south.

It is of these little brown bees that Hiawatha sings when he says:

Where'er they move, before them
Swarms the stinging fly, the Alemo;
Swarms the bee, the honey maker.

When I visited my bees this morning I saw at once that there was something the matter. Such restless motion, such struggling and twisting over each other, such turning and twisting about in a manner unusual for these sedate little working folk. Like Mrs. Poyser, "I had my suspicions," and like dear old John Burroughs, I always feel defrauded if I am away from home when my bees swarm; so every other occupation was forgotten while I sat under the trees and waited for the show. My yard slopes down to the creek, and the lay of the land invites every stray sunbeam to be sure and call as it passes by. An Illinois farm ought always to have a southern exposure, and be laid out on the hospital of a southern climate, and try to live the other way. Under my hickory trees I waited and suddenly heard a delightful sound known only to lovers of bees. What wonderful music in the summer air as they came pouring out of the hive, 20,000 or 30,000 atoms of hurrying, rushing life, whirling big lines to the eye, left a soft little nature, and each striving to get out first! An old bee-worker has described it well: "It is as when a dam gives way, and lets the waters loose, it is a real flood of bees which breaks upward into the air and becomes a fountain of whirling black lines to the eye, and a chorus of myriad musical sounds to the ear. This way and that way they drift, now contracting, now expanding, rising, sinking, growing thick about some branch or bush, then dispersing and massing at some other point, until finally they begin to drift in earnest, and try to live the whole swarm is collected upon the branch, forming a bunch, perhaps, as large as a two-gallon measure." Here they often hang several hours unless a friendly hand offers them a home—pleases them.

My bees to-day were gentle and docile, and when they alighted on a low, hanging apple tree bough they found a sweet and airy hive all ready for their occupancy. In my childhood days the swarming of the bees was a signal for a very bacchanal of noise and fun. Every child on the place seized pan and pot, and with whistling and shouting and a great deal of blowing of horns the bees were fairly stunned into obedience, and scared into settling. Once, and once only, in my life was I a real hero in the eyes of my admiring sisters and brothers. Once when the bees settled on the skirt of my blue gingham sunbonnet, and when by promise of a round silver dollar from my dear father, I kept perfectly still until he gently removed the bonnet and shook the mass of bees into the waiting hive. It was worth the shock to my nerves to hear his "Well done, my brave daughter," and now has ever sounded in my ears all the long years since that happy June day.

In some parts of our country there lingers an old superstition that if you would have luck with your bees, you must be friendly, and tell them all the family happenings, especially if a death occurs. When the dear husband or mother left us, I wandered out where the hives stood in long rows by the garden fence and remembered the old-world belief, and could not help whispering the news to the little creatures as they hummed about me.

Little brown bees, have you heard the news?
The father has left us to-day;
He has gone from the flowers, the grass
And the trees;
He has gone from you, dear little brown bees.

Stay with us still, dear little brown bees;
Leave not the home he loved so well.
Stay with the children, the birds and the trees;
Comfort his loved ones, dear little brown bees.

From the very earliest times bees have been praised as weather prophets, and it is true that they will not fly far from home when a storm is brewing, and when it thunders they become excited and try to hide from the glare of lightning. We have all heard that bees will not thrive in the care of a dishonest man, although they themselves steal honey from their neighbors. I suppose they are true Kiplingites, and consider "that is another story." These little brownies soon learn to know their keeper, and the friendship of bees for their human companions is a well-known fact. An old maxim for those who would find win the love of bees runs thus: "If you would make them love you, and give you good store of honey, you must remove from their presence all unlovely, mischievous, idle, irritable, unclean and deceitful people." And when one ponders deeply the meaning of these words, and realizes how widespread their application, it makes one doubt whether there be enough people left to raise honey for even a favored few. But, fortunately for poor human nature, these gentle honey-makers are not so

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more they can be increased, and the offener swarms can be made. This involves more labor, but the old colonies keep on building combs and rearing brood to be utilized in increasing the apiary. It is not best, however, to increase any more than two from each old colony.

Bees do not swarm every year, but only such years as give a bountiful supply of honey. It seems by natural instinct they can, at least to some extent, foretell the season. It requires a good honey flow to induce them to swarm, and in this they seldom make a mistake. We have very frequently noticed that when little or no attempt is made to swarm, and also at a time of a very good honey flow, that it followed a poor honey season. On the other hand, when it seemed that an emergency was bent in the direction of swarming, a large crop of honey was the result. Bees often make all preparations for swarming, and the swarm is due to come off, but they failed to come, and swarming was given up for the time being, the surplus queens or queen cells being destroyed.

In building up artificial swarms it is a good plan to go to each strong colony and set one or two frames into a full-sized hive with the nucleus swarm mixed up with the other combs. As a rule the queen will be accepted, because the bees seem to know that the hive does not belong to them, and do not know whether to kill her or not. It is best to cage the queen for a day or two or let the bees release her, as cages are provided for that purpose. Proceed, in like manner, with the other queens. The more there are the

A correspondent laments the fact that growers of alfalfa hay are cutting earlier than usual. Instead of three cuttings in

Live Stock

DATE CLAIMS FOR LIVE STOCK SALES.

POLAND-CHINAS.
Oct. 28—E. E. Asline, at Oak Grove, Mo.
Aug. 12—Minnis & Hart, Edinburg, N. C.
Sept. 2, 1902—L. M. Mones & Son, Smith-
ton, Mo. Registered saddle and har-
ness horses. Registered Shorthorns and
Poland China Hogs.

BERKSHIRES.
Feb. 12—Biltmore Farm's annual sale of
Berkshire brood sows, Biltmore, N. C.
Aug. 4—A. J. Lovejoy & Son, Roscoe, Ill.
Aug. 4, 1902—Berkshires: A. J. Lovejoy &
Son, Roscoe, Ill.
Aug. 5, 1902—Combination sale, Kansas
City, Mo.

Sept. 17, 1902—Combination State Fair
sale, Indianapolis, Ind.
Oct. 1, 1902—Combination State Fair sale,
Springfield, Ill.

Oct. 22-23, 1902—Combination Hog Show
sale, Kansas City, Mo.
Nov. 6, 1902—Combination sale, East St.
Louis, Ill.; Manager, C. H. C. Anderson,
Carlinville, Ill.

NATIONAL SHORTHORN SHOWS
NATIONAL AND SALES.

October 22, 1902—Geo. W. Jessup, Rock-
ville, Ind.; Charles F. Mills, Clark,
Springfield, Ill.
Oct. 31—J. C. Hall, Hallsville, Mo., sale
at Centra, Mo.
Nov. 11—J. J. Little, E. S. Stewart, Dr.
J. F. Keith and J. H. Cottingham, at
Sturgeon, Mo.

Dec. 9, 1902—Combination sale Berkshires,
Manager A. J. Lovejoy, Roscoe, Ill.;
Clark, Charles F. Mills, Springfield, Ill.

RAISING CATTLE FOR BEEF A LONE.

Editor RURAL WORLD: In a recent is-
sue a subscriber asks if it will pay to keep
bred cattle for their calves only on land
worth \$15 per acre. The most convinc-
ing answer that can be given to this
question is that such cattle are profitable
reared and marketed on land worth twice
and three times \$15 per acre. Whether
this is a more profitable business than
other methods which might be practiced
is foreign to the question. It may be safely
said, however, that the raising of na-
tive, common or scrub cattle for beef on
such land is certainly unprofitable. In
order that the raising of cattle for beef
alone should be profitable it is highly im-
portant, indeed it is imperative, that well
bred cattle be raised. Cattle of the best
breeds will take on fat rapidly at an
early age and when finished will com-
mand a higher price on the market. On
the other hand, cattle of common breed-
ing and inferior beef quality will be slow-
er in maturing, bring less per pound when
sold, and each pound of increase will cost
more than that resulting from feeding
the earlier maturing cattle, which can be
finished younger. Feeding operations ev-
erywhere have demonstrated that the best
bred steer can be finished in a younger
time, and at any given period of his life
he can be fattened in a shorter time.
These two facts are both highly favorable
to cheap gains.

FREDERICK B. MUMFORD,
Missouri Agricultural College, Columbia,
Mo.

BREWERS' GRAINS FOR STOCK.

Professor W. A. Henry of the Wiscon-
sin Experiment Station, in answer to an
inquiry in "The Breeders' Gazette" con-
cerning the use of brewers' grains for
feeding both fattening cattle and pigs,
says:

In malted the insoluble starch of the
barley grain is converted into soluble glu-
cose. In the production of beer from malt
the glucose is soaked out of the grains and
becomes the wort from which the beer
is manufactured. The residue grains re-
main almost wholly from the starch, con-
sists of the soluble part of the grain, and
much of its protein content, a little of the
starch and most of the mineral matter.
Fresh brewers' grains soaked with water
from the residue turned out by the brew-
er. These fresh grains are used largely
near the point of production for the feed-
ing of milk cows and other stock. They
feed when properly fed. They can be used
with success for feeding fattening steers,
and may be fed preferably on pastures or
in sheds. Of course, the animals should
have some dry grain such as cornmeal or
something of that character to go with
the wet grains. The limited quantity of wet
brewers' grains may be used successfully
also in feeding hogs. We cannot expect
the hog to take to such feed so kindly as
cattle, because the husk of the barley
grain forms quite a part of the grains.

Probably our correspondent refers to dry
brewers' grains, which now are a quite
common article of commerce. Not being
able to dispose of all their fresh grains
in a satisfactory manner, the brewers
have worked to remove the water from
the grains in order to lighten the mate-
rial, make it possible for shipment to dis-
tant points and to be kept an indefinite
length of time unadversely affected.
In the manufacture of dried brewers' grains
the wet grains are placed in a vacuum
pan and the moisture removed, leaving
a most excellent product known as
dried brewers' grains. These are put
in hundred-pound sacks for shipment. In
the past a large part of the dried brew-
ers' grains produced in the country, Mil-
waukee, for example, have been shipped to
Europe for feeding purposes. American
farmers were not familiar with this kind
of feed, and as it was quite valuable, rather
than sell at comparatively low prices in
this side they exported them.

The high prices of concentrated feeds
for the last year have tended to keep
dried brewers' grains at home, and many
stockmen have learned for the first time
of their high value. The dried grains can
be successfully used to a limited extent
as a feed for horses. They can be used
more extensively for the dairy cow. Steer
feeders have not used dried brewers' grains
to any extent, but they could do so with
profit provided a reasonable amount of
only was fed. In steer feeding dried brew-
ers' grains should be used much as one
employs bran or oil meal. The oil meal
of the ration should consist partly of
corn, supplemented by brewers' grains.
A ration made up of ten pounds of corn
and four or five of dried brewers' grains
should be as useful with the fattening
steer as sixteen or eighteen pounds of
corn alone. A limit of quantity of dried
brewers' grains may be used also as a
feed for hogs. Where one has stock hogs,
this feed should be quite useful, as it fur-
nishes bulk—something of importance
where a limited allowance of nutriment is
required and where the feed should have
a volume in order to properly distend the
digestive tract. Of course one should not
think of feeding any quantity of brewers'
grains either wet or dry, to very young
pigs, as their digestive tract is too limited
in area to permit of using a feed contain-

ing so much inert matter. Let us hope
that hereafter the American farmer will
find it profitable to use brewers' grains so
that they need not be shipped to other
countries for consumption.

BEEF PRODUCTION.

W. A. Henry, one of Iowa's greatest
breeders, in discussing recently be-
lieved in that state, referred to many
things of interest to Texas stockmen and
farmers. He said in part:

"Still again, Iowa should raise the best
bred steers and dams because our con-
tiguous states need them to infuse new blood
and new strength into their herds. This
problem alone, serious as it is to the stock
raisers of other states, promises for a
long time a remunerative market for the
Iowa farmer prompt to seize the situation
and direct his energies toward meeting
the demand thus created. Every ranch-
man in the wild and woolly west has been
conditioned to face with this identical
brought face to face with this identical
condition confronting his herds. Year by
year he sees the well bred animal taking
the place at top prices in the market
stalls of the country, while his scrubby
steers sell at any price at all, sometimes
no more than enough to pay the freight
and loss of weight in transit. As the
population thickens at the centers of the
trade and commerce, the demands for
better beef increase. Better beef means
better fed men, and really cheaper beef in
the long run. Flabbiness gives away in
the well bred animal to general sound-
ness of constitution, and the latter is re-
placed by solid layers of rich, juicy, mar-
bled meat, and the consumer goes home
from market with a meat dinner instead
of a bone and muscle dinner under his
arm. Now, it is just as easy to send to
market a well bred beef as it is to send a
scrub steer. It is no more laborious, no
patience, no better feed, and not even so
much, to send flying eastward and west-
ward in refrigerator cars of carcasses of
beef than it does to send loads of bone,
and coarse, stringy, oily, fatty tissues
that the old time ranger termed 'fat'.
But if Iowa is going to be in beef rais-
ing what Kentucky is in horse raising,
the best in the union, we must work for
our success, as the horse breeders of Ken-
tucky have worked for theirs. Let each
stock raiser determine for himself what
particular breed he likes best, and then
give it his careful painstaking study; he
must not expect to learn all about it in
a few days, or weeks, or even for years, for
it is only by actual experience that he
may acquaint himself with the particu-
larities of individual animals, as well as dis-
tinctive breeds; he will discover before he
has mastered his subject that his first
ideas as to what made a really good animal
were more likely to be incorrect than
correct. It is here that he will find that
the judgment of the old and experienced
breeder becomes a valuable object lesson
to him."

Then we must move on, as the world
moves, not at a snail's pace, but at the
needs of the market be quick to fill
the requirements of the times and the
demands of the consumer, whom, after all,
we are trying to serve. The overgrown,
long-legged, long-bodied and rough-mad-
der steers, that will weigh 2,000 pounds, or
more, and in which, now, is his profit-
able to his owner. The fashionable, as
well as the profitable beef animal, must be
one that responds quickly to his keep and
matures early; he should have light bone,
his meat should be free from patchy spots
of stringy fat—such an animal as the
butcher calls a good killer. "The present-
ment of the animal, with the percentage
of good, wholesome beef is large."

"I hope to live to see the day when
there will be a larger and more increasing
interest taken by our stock raisers in
pure bred stock of all kinds. Success can-
not be won by any other field. It comes
only to those who get the best to start
with, and who work each year toward a
higher ideal, for there are ideals in stock
raising, as well as in other matters. And
it means, too, better results, better profits,
more satisfactory labor and higher skill-
but to attain these it means patient,
painstaking work along the lines of high-
est ideal, and the highest ideal is the
ideal realized, the Iowa cattle grower, like
his predecessor in England and Scotland,
will have always about him, not alone the
pure bred and the best bred beef cattle
in the world, but the finest milkers as
well, and with them sheep and swine, and
not least, horses that are a pride on
any farm or before any gentleman's
carriage. The best beef that can be
none too good for the coming Iowa farmer
and stock raiser."

PURE BREEDS OR SCRUBS.

Uncle Sam has not displayed his usual
business acumen in purchasing cattle for
the Indian reservations, as Mr. W. P.
Harned, of Cooper County, Mo., shows in
a letter to the "Breeders' Gazette," which
we reproduce here.

"To Americanize the Indian is a great
name; even the unique picture of Uncle
Sam portrays great wisdom, weight and
force. He has done many good deeds for
the people. He protects, watches over and
encourages them with a penetrating yet
non-fretting eye. He has established fast
mail service, free rural delivery, public
schools and a bureau of animal industry.
And who can name the many good things
Uncle Sam has set on foot for the educa-
tion and advancement of his people? He
employs the best talent in the many de-
partments under his control. Uncle Sam
is wise and honest, the people respect his
judgment and have confidence in him.
Yet he can make mistakes, which are
very far-reaching. These mistakes are
usually made by the heads of depart-
ments."

"I have enduring confidence in our gov-
ernment and believe that Uncle Sam
makes a mistake he prefers to correct it
rather than continue in the wrong. The
best breeders of live stock believe the
greatest measure to progress to-day is the
grade sire; yet Uncle Sam has recently
purchased 16 grade bulls for the Indians
and the grade sire is bad for the farmer, bad
for the Indians and bad for Uncle Sam.
The example is bad, the principle is bad
and the education is in the wrong way.
Neither is there any excuse for purchas-
ing grades. Uncle Sam has a class of
men who are trying to elevate the cattle
standard of the country and he should
never be an obstacle in the road to pro-
gress. Pure bred bulls can be had cheap
enough if he will call for bids on them.
They will be more remunerative than
grades, the example will be better and
surely more in line with progress and ed-
ucation for the Indians. When Uncle Sam
gets through with his grade bulls and the
beef trust will be tell us how much he has
benefited the breeder of improved cattle
and the grower of high-priced beef in a
famine year?"

ECONOMY IN SUMMER FEEDING.

There should be a little more economy
practiced in feeding in summer than in
winter, says an exchange. Live stock do

not require so much expensive foods to
keep them in good condition during sum-
mer as they do in the winter, and if
one is judicious in his selection and grow-
ing of food it is possible to equalize mat-
ters in feeding to bring down the cost to
a very low point. Economy of feeding,
however, does not mean starvation nor
even deprivation of good, wholesome,
nourishing food. The grass pasture
should be particularly supply the animals
with a food that is both succulent and
nourishing, but there should be in addi-
tion such grain and coarse fodder given to
make bone and muscle. A good deal of
such food, however, can be obtained at
little expense from large grain farms
where the sweepings of the threshing
barns are disposed of at nominal sums.
Young corn raised for summer feeding
should be fed in conjunction with pasture
when the latter begins to dry up and lose
much of its succulent nature. The saving
of the pasture from injury by too close
cropping is sometimes economy in feed-
ing of the most far-reaching character.
Anything that destroys or permanently
injuries the pasture range is to be de-
plored, for sooner or later the loss will
prove of the greatest importance.

A grass pasture in feeding is
obtained by portioning out sufficient food
for each meal, and not permitting a par-
ticle of waste. Whether grain, fodder or
freshly cut grass is fed this rule should
be closely followed. Waste is the worst
form of loss that the farmer can endure.
Boredoms from the grass and feeding it
to stock in the yard. In this way we get
the best from the pastures, and make the
cattle eat up all parts of the grass. In a
pasture field where the grass has reached
a large size, stock will graze over the
youngest grass, leaving the older grass
and the large stalks standing. These
latter are trampled under foot and waste-
d. There should be some method to pre-
vent this, and cutting the long grass and
feeding it in the yard or stable is some-
times the best way to do it.

EXPERIMENTS WITH BOILING.

As is pretty generally known through-
out the west, green alfalfa pasturage is
dangerous to the bovine race. Eaten un-
der certain conditions it is sure to bloat
the animal, and so rapid is the advance
of the disorder that radical measures
must be resorted to save the life of the
afflicted animal, writes H. A. Crafts in an
exchange. Lancing is about the only ef-
fective remedy and this must be done at
the right spot, else it is ineffective in re-
lieving the animal and may be as fatal as
the bloating itself. The exact pathologi-
cal effect of the plant upon the bovine
system I am unable to describe. The pro-
cess, however, is the rapid generation of
gases in the animal's stomach and the
immediate swelling of the animal beyond
all natural semblance.

It appears to affect none other of the
ruminant species in that fatal way.
The horse, the sheep and the swine will
feed upon it under any and all conditions
and show no ill effects. Alfalfa is most
dangerous to the bovine species when
eaten in its young and tender leaf, es-
pecially if the alfalfa is wet by a
rain or heavy dew. An animal, too, that
has been feeding copiously upon the plant
will very often bloat if allowed to drink
large quantities of water just after the
feeding.

The plant, however, makes excellent
pasture for cattle in young or old, if
bloating can only be prevented. It makes
an excellent feed for dairy cows, and so
valuable is it in this line of feeding—at
the agricultural department of the Colo-
rado Agricultural College is endeavoring
to devise some method by which this dan-
gerous plant can be rendered safe for
experiments in feeding are being pur-
sued at the present time by the depart-
ment. A part of the dairy herd of the
college, consisting of Jerseys, Shorthorns
and common stock cows, have been sepa-
rated from the general herd for experi-
mental purposes. These animals are not
fed alfalfa, but are kept in the feed-
ing yards and fed on alfalfa out of the
adjoining field when dew or moisture
from dew and rain and piled up in the
barn. This alfalfa is fed to the cows three
times daily with a single small daily
portion of bran. The cows are also allowed
to drink freely of water, and are kept in
the yards. The alfalfa is cut twice a
week and is carried under cover
as soon as may be after it is cut. It re-
mains comparatively green and fresh,
however, until fed to the cows.

The experiment now extends to the de-
termining of small quantities of growing
alfalfa will produce sufficient feed for a
single cow. A certain part of alfalfa is
taken for the experimentation and the alf-
alfa is cut in quantities, as has been in-
dicated, to last three or four days. The
cutting is begun on one side and contin-
ues until the alfalfa is cut on the other
farther edge has been reached the pot
is ready to be gone over again in a like
manner as before. Of native pasture it
requires three or four acres to furnish
feed for a single cow, but the college peo-
ple expected to prove that one acre of
alfalfa would furnish feed for at least
four cows throughout the season.

The experiments thus far have shown
excellent results. The cows have not only
shown no ill effects from their diet of alf-
alfa, but have made an actual gain in the
quantity of milk produced. It appears to
be doing both the work of the alfalfa
of the cow and to the land from which
the feed is cut. The cows do not have to
put forth the effort that is necessary in
grazing. They can rest much of the time,
yet have ample room in their yards for
physical exercise. They may either bask
in the sun or seek the shade offered by
the sheds as they choose, so the condi-
tions for the production of milk appear to
be the best imaginable.

It also is wasteful to an alfalfa field to
pasture it with cattle. The constant graz-
ing and tramping of the animals bruise
the plants, which retards the growth. Profs.
Buffum and Griffiths expect to make a
very favorable report on their experiment
when it shall have been concluded.

MILKING QUALITIES IN THE BEEF BREEDS.

Prof. Curtiss of the Iowa Experiment
Station says of the value of milking qual-
ity in the beef breeds:

Supposing milk secretion tends to
weaken fecundity and thereby to shorten
the reproductive period of the breeding
animal. The best milkers are almost in-
variably the best breeders in the world.
The shy breeders are rarely if ever found
among the heavy milkers. Cows that do
not milk well seldom breed regularly un-
til advanced age is reached, and what
calves they do raise will be stunted unless
provided with a nurse cow.

The most important reason for combin-
ing milking quality with beef, however, is
rarely considered at all. It is a prime
factor in maintaining smoothness and
quality. To suppress milk is to curtail

fecundity or breeding quality, and to cur-
tail the check breed of quality. In the
male, the milk and the direct result is
the females become coarse and masculine.
They not only tend to become coarse and
masculine in appearance, but coarse in
substance and texture. The scant milk
becomes a shy breeder and grows more
gaudy and uneven in her flesh. It is a
rare exception, gives little milk and lays
will carry flesh smoothly and evenly to
maturity unless descended from good
milking ancestry.

There is no doubt but that a cow that is
a deep milker and regular breeder will
hold her true form longer than one that is
a shy breeder, gives little milk and lays
on flesh and fat quickly. In animals re-
tained for breeding purposes this is a se-
rious objection, but considering the mat-
ter from the standpoint of the feeder
growth and early maturity, qualities
which will always be sought after by him,
this objectionable quality becomes a very
desirable one. The tendency to put ev-
erything into flesh and fat means quick
growth and early maturity, qualities
which will always be sought after by the
feeder. Of course if such animals are
kept after they are ripe they will become
objectionable, but that is seldom or never
done with a beef animal.

This view of the question is one that
we have frequently called attention to,
and advised breeders to decide where
their customers would come from in se-
lecting stock to form a herd or in the se-
lection of sires. For the farmer who
wishes to produce a good feeding calf, a
large amount of Bates blood will be more
certain to meet his requirements than any
other line of breeding. But for the breed-
er who expects to sell bulls to western
men who make a specialty of growing
cattle, the more Scotch blood the better.
In the issue of the "Breeders' Gazette" of
May 7, R. J. Kleberg of Texas, who is
owner of a large cattle ranch, gives ex-
pression to this idea in an interview with
a correspondent, in which he is quoted as
follows:

"Now, the trouble with the old Short-
horn cow for the range is that she has
been too good a mother, too good a mil-
ker, too persistent a milker. That makes
her get t'n at a time when it is danger-
ous to the cow and calf. Now the new
Scotch blood is coming, and it is be-
lieved that it will revolutionize the
range Shorthorn, and though the Here-
fords do so wonderfully here these people
still love the Shorthorn better and wish
to make her as hardy as the Hereford
and hope with this blood to do so."
So the Scotch blood for the range is the
generally; farmer in this and other neigh-
boring states is not the one that is want-
ed on the range, and that to meet these
various demands there are really two
classes of the breed, one a dual purpose
and the other a pure beef animal. This
is the case in the days of the Souths and
Bates. It is in the modern days of the
range Shorthorn, and though the Here-
fords do so wonderfully here these people
still love the Shorthorn better and wish
to make her as hardy as the Hereford
and hope with this blood to do so."

WHY BUY SHORTHORNS.

The American Shorthorn Breeders' As-
sociation is more prosperous and on a
more substantial basis than at any time
in its history. The receipts for the office
during 1901 were larger than during any
previous year, while 1902 shows a decided
increase over the corresponding period of
the previous year. As recent annual
meetings have been held in December, the
secretary's report closed with Dec. 1, in-
stead of January 1. The receipts from
the American Shorthorn Breeders' As-
sociation during December, 1901, January
and February, 1902, were \$21,141.40,
and \$2,914.50 for certified copies, while for
the same period of the present year the re-
ceipts are \$33,558 from pedigrees and \$3,
647.50 for copies. This shows a gain of
\$12,344 from pedigrees and \$733 from cer-
tified copies. The receipts for the office
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The Pig Pen

Written for the RURAL WORLD.
INDIANA'S SWINE INTERESTS.

Among the pork-producing states Indiana holds high rank. The United States census for 1900 shows our state to rank fifth, with a total of 2,700,000 head, valued at \$12,000,000, being surpassed in rank only by Iowa, Illinois, Missouri and Nebraska. Indiana always has ranked high among the swine-producing states, and has fallen second to fifth place only through a period of many years. During the year of 1900 there were received at the two stock yards at Indianapolis 1,885,781 hogs, and the local packers in that city paid approximately \$12,750,000 for this stock. This latter is one of the great pork-packing establishments of the country.

If we turn to pure-bred swine for breeding purposes, we find that Indiana breeds more than any other state in the central United States. The show of swine at the central State Fair is always very large, and while mainly made up of home-bred animals, it may yet be classed as one of the four greatest annual swine shows. In the auction ring, pure-bred pigs of Indiana breeding are being sold for more than at any other time in the history of the state, and the attention and respect of the breeders of the country.

The preceding statements are made more for the purpose of indicating the great significance of our swine industry than anything else. The fact that Indiana has such a large number of swine, and that our people very generally are engaged in breeding and feeding this stock, makes it desirable that the magnitude and importance of this phase of live stock husbandry be impressed upon us. We are located in the corn belt, and produce corn, oats and clover, and other standard foods, which enable us to produce swine economically and profitably. The title of "mortgagee" as often applied to the hog, has an appropriate application within the borders of Indiana.

In order to promote successful swine husbandry, a number of things that it will be well to keep in mind. If we maintain the number of brood sows at the present figure, whatever that may be, and breed wisely, the swine wealth of the state may be greatly increased. There has been too much of a tendency for brood sows to be sold for less than the breeders, reports are frequent of litters of four and five pigs. There are several causes for this, but one is a matter of inheritance. Sows from pigs that have farrowed such small litters should not be used for mothers. A process of selection should be adopted, and every breeder should have a standard to be adhered to excepting under unusual circumstances. Sows should farrow litters of eight or more, and should easily rear, bearing accidents, litters of ten at least, if that number are farrowed. Sows from large litters, if possible, should be used for service, so that the tendency will be to develop the prolific habit. If one is a breeder, the difference between profit and loss is often one of size of litter. If our breeders will select large, roomy, well-matured sows from prolific families and mate them to strong, healthy, well-fleshed, blocky, short-legged boars, they will add greatly to their wealth in swine.

Strength of bone and limb is also essential in successful swine husbandry. A pig should have a strong, good-sized bone, as shown in the leg, and ought to stand up well on his feet, and have an active movement. A serious defect seen in many market-fed pigs, as well as brood sows, is the broken down foot, with the dew claws dragging, when they should be free from the ground. Too

DUROC-JERSEYS.

Rose Hill Herd

Of Duroc-Jersey Hogs. Choice gilts to breed, for fall pigs. Bred by service and spring pigs ready to ship. All from large sows of prolific families.

S. V. THORNTON,
Blackwater, Mo.

DUROC-JERSEYS: 10 Cherry Red Pigs, early large and growing. Prices right. R. S. BODDY, Armstrong, Mo., near Co.

40-DUROC-JERSEYS—40
Of Red Sows and Gilts of Best Strains.
S. G. RICHARDS, Sturgeon, Mo.

CHESTER WHITES.

O. I. C. SWINE Three Gilts with litters in September; also two fall boars; registered. Write for prices on pigs that are ready to ship.

ALVY BROS., Argentine, Kas.

IMPROVED CHESTER WHITES.

Orders now taken for Spring Pigs from large, prize-winning animals. Prices reasonable. Call on or write to:

H. RAUSCHER & SON, Ashton, Mo.

O. I. C. A CHOICE LOT March, April and May Pigs for sale. R. S. BODDY, Armstrong, Mo.

R. S. BODDY, Armstrong, Mo.

POLAND-CHINAS.

160-LB. PIGS by U. S. Chief Trenchard 2d, U. S. S. Chief Trenchard 1st, Know, Chief Perfection 2d, L. A. SPIES BREEDING CO., near St. Louis.

WALNUT Valley Farm Herd—Poland Chinas, Black U. S. Chief Perfection 2d and Trenchard 1st, at mod. prices. Ernest W. Wallen, Mound, Mo.

VIVION & ALEXANDER,

FULTON, MO.
Breeder of the best strains of Poland-China hogs. Registered Jersey cattle and Plymouth Rock chickens. Young stock for sale at all times.

FOR SALE at reasonable prices Pigs of winter breeding and spring farrow and one good yearling boar. M. R. TERRY, near St. Louis.

C. H. JONES, R. R. S. Pawnee, Ill.

POLAND-CHINAS. Gilts—age and quality combined. L. A. SPIES BREEDING CO., near St. Louis.

BERKSHIRES.

2 LARGE English Berkshire Brood Sows and one thoroughbred Shorthorn Bull calf for sale. M. R. TERRY, near St. Louis.

MAISONVILLE, Phillips Co., Mo.

MOORE'S HOG REMEDY

The Original Hog Dip.

Used on Outside and Inside of Hogs.

Kills lice and fever germs, removes worms, cures mange, canker and cough; aids digestion, promotes healthy growth, and

Prevents Disease, at Small Cost.

At Dealers in Saddle Gun Outf. Useful book with illustration of each kind of disease.

MOORE C. & M. CO., 1200 Grand St., Kansas City, Mo.

much heavy forcing while young will cause the feet to weaken at the pastern, but if good bone exists the tendency towards defective pastern will be lessened. If our breeders will call inferior animals from their herds more severely and in breeding will seriously consider the two points of productive capacity and strength of bone, they will make a wise improvement in the character of their stock.

The subject of sanitation is also one of great importance. If pigs are kept under healthful conditions and are not allowed to exist in foul pens or lots, cholera will be a much less frequent visitor than when filth and disease prevail. One should not be careless and unclean in the care of the piggery, and then look to some quick cholera remedy to effect a cure. Prevention is a far better method. Very generally healthy surroundings and good, wholesome feed and water will keep hogs healthy. Yet too often the feeder does not seem to appreciate that fact.

In conclusion, a final suggestion may be of use to the shipper. The more uniform the carload of pigs sent to Chicago, Indianapolis or Cincinnati, in color, size and quality, the better the price obtained and the more credit goes to the state produces such pigs.

C. S. PLUMB,
Purdue University, Lafayette, Ind.

CLARK CO. (MO.) NOTES.

Editor RURAL WORLD: Crops are very promising. Corn is about all laid by and looks fine. Oats and hay harvest will begin in a few days. Our Chester Whites are doing fine and we have a nice lot of spring pigs on hand now that are ready to ship. We think we can satisfy any one who wants a good Chester.

H. RAUSCHER & SON,
Ashton, Mo., June 27th, 1902.

STOCK NOTES.

Mr. S. L. Thornton, Blackwater, Mo., owner of the Rose Hill herd of Duroc-Jersey hogs, writes us that his stock is all in a thriving condition and that the demand for breeding swine is increasing. He has some choice gilts of 300 to 350 pounds, bred for fall pigs, and also three choice boars about that weight for sale. He also has 100 spring pigs, ready to ship. Crops in his locality are good and prospects very encouraging.

DESTINY OF THE HOG SKIN.

The oily, greasy, thick pig skin is arousing new interest. Heretofore the slaughterhouse has not seriously bothered itself about skinning the hog, while his green hide left on the carcass and unaccounted for has brought eight cents per pound when weighed in as cured ham or smoked bacon.

The scientists will not let things alone, however, and it may yet pay to strip the hide from the hog for commercial purposes. The leather splitter has demonstrated his ability to shave hides almost to tissue leather. It is claimed that he can split the leather to the thickness of a cigarette bottle stopper cover and manufacture that article at a ridiculously low price.

TO ELIMINATE "HOG FLAVOR."

The "hog flavor" in pork is a distasteful to many persons as is the "wool taste" in mutton. The "hog flavor" would seem to be largely avoidable, writes W. W. Wyckler of the New Farmer. When the day of slaughter approaches the hog should be finished off. This means that for two or three weeks before slaughtering the animal should be put on feed that will reduce the rankness of flavor in the pork.

That the food largely controls the flavor of the meat is shown in the characteristic flavor of corn fed pork. This suggests that much of the "hog flavor" is due to the food consumed by the animal just before slaughter. Corn, rape and other feeds may be depended upon to reduce the rankness of the flavor, although no feed will entirely remove it.

Another idea on this point is that the swine that spends his last days in a filthy wallow may add some of the stench of his wallow to the natural flavor of his flesh. The odor of the neglected sty is nauseating, and it is "hog flavor" with a vengeance.

This suggests that, in addition to clean, sweet, mild-flavored finishing off rations, the hog in his last weeks should be kept as clean as possible. Certainly he should not be allowed to wallow for several weeks before killing.

Clean quarters, clean feed, gentle exercise, and abundance of clean and fresh water will put the hog into prime condition for the pork barrel and the smokehouse, the oven, the frying-pan and the broiler.

JUDGING BY THE SCORE CARD.

At a recent meeting of the Iowa Swine Breeders at Ames, Prof. W. J. Kennedy read an instructive paper on the above subject in which he said, in part:

No man can be successful as a swine breeder who is not a critical student of animal form. More than one hundred years ago Robert Bakewell, one of the greatest live stock improvers the world ever saw, said that it was easier to find twelve men fit for cabinet positions than one good judge of live stock. We are a progressive people and have made great strides along many lines, but if Bakewell were to return at the present time he would not find things very much different from what they were in his day. Has it ever occurred to you that the ability to judge live stock correctly and well is of a rarer degree, if not of a higher order than that which interprets the laws of the nation? The men who pass judgment on the stock which goes to our large markets, men who are required to know one thing only, command higher salaries than the judges at the bar of justice in the highest courts of our land. This is due to the fact that there are one hundred men qualified to preside at the bar of justice for one that is qualified to be head buyer for Swift & Company or Armour & Company.

A famous artist was once asked what was the first essential to success in his work. He replied, "To see right." Just so in the judging of live stock. The man who does not see right can never be a good judge. In the judging of stock, observation and judgment are the factors which determine whether or not the man is successful. The man must be a close observer in order that he may detect at a glance the desirable and undesirable points in an animal. He must always see the animal as it is. Too many would-be judges see things which are not there and fail to see things that are before them. Good judgment is indispensable, as in exposition judging the decisions are nearly always made by the balancing of points. Seldom it is that any animal excels all others in every respect. Right here where skill is required. Most men

can pick a good hog over a poor one, but it takes a critical judge to select the winner in good company.

Much has been said in favor of and against the score card. Some condemn the score card and claim that it has no place. Others idolize the score card to such an extent that it is always to be found in their hand or inside pocket. I am firmly convinced that the score card has done a great deal for the improvement of our domestic animals. Perhaps no other factor has been so instrumental in the perfecting of our swine. That it has a place, no man can very well dispute, but like other good things, it should be kept in its proper sphere, else it will be looked upon with disfavor. The score card is supposed to describe the ideal animal, thus every man should have the score card definitely fixed in his eye—not in his hand or in his coat pocket. It teaches the man to analyze and look for the little things which are so essential to success. It emphasizes the fact that some parts are more valuable than others as indicated by the other scores given for the same. The score card, however, as an educator is simply a means to an end, which is the fixing of a distinct model in the mind of the user of the same. In our class work we use the score but for a few days, as the continued use of the same makes the student too dependent. He always has the description of each and every part before him at all times. Instead of requiring him to work down his score or the amount he cuts the animal under the various heads, we require him to fill out a blank form giving reasons for each score. This method is soon followed up by comparison work where the score is not used, but blank forms instead where the student must place the animal first, second, third, and fourth and write full reasons for so doing. The work is more practical and makes the student more independent.

The score card should never be used in the judging ring as it is not reliable enough. Different men of equal ability will mark differently on the same animal, while the same judge has been known to vary from four to six points on the same animal at different times. They may all see the same weakness but the variation comes in the amount to cut—that is, whether it is a half a point, a point, or a point and a half, etc. We can educate people to detect defects in animal form, but it is a most difficult task to train men to score these defects the same. The score is all important; the latter is not necessary. The score card has done a great work and should be credited with such, but it is only a means to an end and has no place in an exhibition.

FIG POINTERS.

Under all conditions one service is better than allowing the boar entire freedom with the sows.

In arranging the hog's winter quarters the most important item is to guard against rain, wind and snow.

The farmer should be able to make his own pork cheaper and equally as good if not better than he can buy.

Early breeding weakens the maternal forces of the sow, causing small and weak litters with insufficient nourishment.

Give no sour swill and decayed vegetables even to hogs. Because even such stuff is no sign that they will flourish on it.

If the sow is a good breeder don't send her to the butcher, because she may be two or three years old. Keep her breeding a year or two more.

An excess of corn in the diet of the sow and also of the young pigs is apt to produce scours. The pigs should have no corn until six weeks old.

"Black teeth" in pigs was once supposed to be the cause of nearly every trouble they are heir to. It is a myth, and to be classed with "hollow horn" in cattle.

When your hogs are ready for the market sell them. The man who holds his pigs for a rise in price is very often apt to lose money. While he is waiting the hogs are ready usually make a profit. Hogs will consume food enough to more than offset the expected rise in the market.

Wheat is a very good grain to feed to hogs. The best way to roll or grind it into a coarse meal. It may then be fed alone or mixed with corn meal or ground oats. When ground fine it is pasty and adheres to the teeth, gums and cheeks so that it is not so readily masticated or eaten. In the form of coarse meal it is cleaned by all animals and is in no danger to be attacked by the digestive processes whether thoroughly masticated or not. Dr. Gilbert appears to have obtained better results from whole than from ground wheat when fed to sheep. Sheep feeders may therefore experiment with whole wheat meal.

With sheep we have three opportunities for profit, or rather income, and all

SUFFOLK EWES.

The "Live Stock Reporter" says that Suffolk ewes usually have twin lambs and often triplets, but the strength of the mothers and their fine milk-producing qualities prevent the lambs from becoming a misfortune. In a famous flock in England a ewe produced 14 lambs in six years, and the seventh year, twins. Of these 20 lambs, 19 were rams. Many of these lambs were sold for breeding purposes, and some of them at high prices, showing that triplets are not necessarily weak.

With sheep we have three opportunities for profit, or rather income, and all

reasonable care should be taken to utilize them to the best advantage. Breed, feed and care for the sheep so as to grow the best fleeces of wool, secure the best and most healthy lambs with a good carcass of mutton, and the more fully this is done the better will be the opportunity for profit.

SHODDY VS. PURE WOOL.

The shoddy bill, which seeks to protect poor people from the imposition on them of rag-bag material, labeled "pure wool," "fine kersey," etc., will be pushed through Congress this session. At the moment the wool interests are not only in favor of the bill, but they are at work pushing it to a conclusion. The men behind it are Representative Norton, of Ohio; Senator Platt, of New York; Senator Warren, Senator Clark, of Montana, and nearly every western and middle western Representative and Senator from states in which wool is raised. The President, too, has heard voluntary views about the bill from the representatives of four billions of capital.

It is now impossible to sidetrack the bill. Opposition to it would be ashamed to show its head. The bill simply means that if there is shoddy in the goods you sell, you must say so. The manufacturers and wholesale dealers are the people to be held responsible primarily for a failure to properly tag shoddy goods. The "Chicago American" has secured an official copy of the proceedings of Wednesday last before the ways and means committee, which on that day was compelled to give a hearing to W. M. Springer and Senator Warren.

Here is an extract from Mr. Springer's argument, which will amply show those who believe that the manufacturer of shoddy is an unimportant matter: "The shoddy used amounted to 75,000,000 pounds, in round numbers, during the census year 1900. The secured wool, excluding hulled wool, produced in the United States during the census year 1900 amounted to 101,000,000 pounds. The shoddy used in the same year amounted to nearly 75 per cent of the secured wool. Now, that is a very remarkable statement it seems to me; but it is supported by the statistics. As 60,000,000 pounds of wool produced only 161,000,000 pounds of secured wool, the cloth-producing power of the shoddy used was equal to the fleeces of 30,000,000 sheep. The farmers only had 40,000,000 of sheep in the United States during the census year 1900; and the cloth in the United States that represented a woolen goods, contained another product of vastly inferior value, which had a cloth producing power equal to 30,000,000 sheep. The products of the shoddy mills were 57,000,000 pounds in 1900 and represented 50,000,000."

I do not see what objections could be made to the present bill. You will remember that we have just passed a bill known as the oleomargarine bill. The advocates of that bill contended that the people of this country, the consumers of butter, had the right to be protected against what would be a fraudulent imitation of butter, the imitation being so perfect that the consumer could not tell when he purchased whether he was purchasing the real article or the imitation.

INFLUENCE OF THE RAM.

We have recently published several letters on the subject of twin lambs and the ram's influence on plurals births. Says James Arnold in the "Breeder's Gazette." It seems that all of the writers are somewhat at sea in the matter. A citation of a few scientific facts, perhaps, will help to clear up the matter a little. It is a fact well known to scientists that all our domestic animals are produced from eggs. That during the oestrus or heat period of the female, one or more eggs, according to the nature of the animal, pass from the ovaries into the uterus. If fertilized by the male at that time the oestrus does not return at its regular period, but a period of incubation ensues, according to the nature of the animal, to be followed by an external delivery of the foetus, called parturition. This delivery may with equal propriety be called the hatching period, as the only real difference between the incubating period between the mammalia and poultry is that in the mammalia the eggs are incubated internally and in the poultry externally, that in the mammalia the soft-shelled egg is protected during incubation by the body of the animal and the eggs of poultry are protected during incubation by an outer hard shell, the complete egg being inside of this shell for obvious reasons; that in the mammalia the foetus is nourished by continuous contributions through the umbilical cord, while in poultry the chick is nourished in the same way by stored-up material.

Another scientific fact is that the male has nothing whatever to do with the appearance of the oestrus in the female, or the duration of its period, or the number of eggs produced at any oestrus; the male simply fertilizes whatever eggs are present in the uterus. A hen will lay as many eggs without a male as with one and the oestrus will come and eggs pass down the fallopian tubes into the uterus of the mammal though no male of the same species is within a hundred miles, but the ova will not hatch without the influence of the male. It is clear, then, that the only influence of the male is in the fertilization of the eggs present in the uterus at each oestrus.

Another scientific fact is that by judicious feed and care the females in both our mammals and poultry can be stimulated to the production of an abnormal quantity of eggs during an oestrus and

The Shepherd

THE WESTERN SHEEP INDUSTRY.

Great changes are pending in the breeding and raising of sheep in the far West, which will have a disastrous effect upon the business as at present conducted. From Oregon immense numbers of sheep will be marketed in the immediate future, in consequence of the adverse legislation affecting the interests of the sheepman. The halcyon days of the sheep business in the West are over. Everyone seems to have a club ready to whack the poor sheepman, says a writer in the "Chicago Live Stock World." Legislation adverse to his interests is cropping up everywhere—here it is a state pasture tax, there a restriction as to grazing limits—everywhere legislators are endeavoring to hamper his industry. The range is already overstocked and the man of range sheep this year is expected to be 50 per cent greater than last year. There has been plenty of grass, but that is now gone, and the mountain ranges cannot, as of old, be utilized for they have been eaten bare; the settlement of the plains has put a stop to the old-time profitable practice of traveling sheep bands eastward, and freight must now be paid all the way to market. Dakota has a tax of 10 cents on the head for pastures tax, and the sheepman has a hard proposition before him. The ranges being closed, sheep raising must be done on deeded land, and the railways will have an opportunity of disposing of all their grant land to large cattle concerns. The Northern Pacific has already sold this a company who intend to use it for stock raising.

The change in the economic features of the western sheep industry will inure to the benefit of the farmer of the middle and middle-western states, inasmuch as it will create a demand for sheep which the farmer of the west cannot supply. The farm instead of the range, and an acre of farm land will raise five sheep where but one could live on the range, artificial feeding being out of the question on the range.

The large increase of lambs on the range in the northwest this season has been very large, and overstocking has reached a serious stage. This, coupled with the adverse legislation of the last year or two, has sealed the fate of the sheepman on those ranges and in a very few years the supply of lambs and muttons shipped will come entirely from the farmers.

A Chicago sheep handler tells the "Live Stock World" that there was a marked deterioration in the sheep market last week. "Grass is responsible for it. Both native ewes and lambs have been coming to market very fat all season. This condition was due to dry weather, the principal cause of the excellence of range sheep. In fact, last fall and all winter range conditions prevailed over a greater part of the corn belt, and the sheep, an animal that thrives on dry weather, got fat. Ewes were in splendid condition and able to raise their lambs well. Later, conditions have changed. The corn belt has been fairly deluged, grass is growing rank, and as sheep cannot thrive on that kind of pasture they will soon be coming half fat. You can notice the influence of grass every day. By August, native lambs will be as poor as wool. The open dry winter has had a good deal to do with keeping native sheep in the same good health as is usually enjoyed by westerns. Washy grass is invariably productive of disease in sheep flocks."

MICE ON SHEEP.—Adelt Bailey, an Urbana farmer, says the Ontario County (N. Y.) "Times" noticed a black spot on one of his sheep the other day, and as he looked closer, it disappeared. Then another black spot came, and this time he saw that it was a mouse. He concluded that it was time to investigate, and thrusting his hand into the sheep's thick coat of wool, found three snug and cosy mouse nests, each with a new-born litter of young ones in it. He lost no time in breaking up these old mouse colonies, and then looked over others of his sheep, with the result that he found four more, in the depths of whose wool mice had chosen warm places to build nests and bring forth their young. Ten nests were found in all, containing an aggregate of seventy young mice.

THE "LIVE STOCK REPORTER" says that Suffolk ewes usually have twin lambs and often triplets, but the strength of the mothers and their fine milk-producing qualities prevent the lambs from becoming a misfortune. In a famous flock in England a ewe produced 14 lambs in six years, and the seventh year, twins. Of these 20 lambs, 19 were rams. Many of these lambs were sold for breeding purposes, and some of them at high prices, showing that triplets are not necessarily weak.

With sheep we have three opportunities for profit, or rather income, and all

reasonable care should be taken to utilize them to the best advantage. Breed, feed and care for the sheep so as to grow the best fleeces of wool, secure the best and most healthy lambs with a good carcass of mutton, and the more fully this is done the better will be the opportunity for profit.

SHODDY VS. PURE WOOL.

The shoddy bill, which seeks to protect poor people from the imposition on them of rag-bag material, labeled "pure wool," "fine kersey," etc., will be pushed through Congress this session. At the moment the wool interests are not only in favor of the bill, but they are at work pushing it to a conclusion. The men behind it are Representative Norton, of Ohio; Senator Platt, of New York; Senator Warren, Senator Clark, of Montana, and nearly every western and middle western Representative and Senator from states in which wool is raised. The President, too, has heard voluntary views about the bill from the representatives of four billions of capital.

It is now impossible to sidetrack the bill. Opposition to it would be ashamed to show its head. The bill simply means that if there is shoddy in the goods you sell, you must say so. The manufacturers and wholesale dealers are the people to be held responsible primarily for a failure to properly tag shoddy goods. The "Chicago American" has secured an official copy of the proceedings of Wednesday last before the ways and means committee, which on that day was compelled to give a hearing to W. M. Springer and Senator Warren.

Here is an extract from Mr. Springer's argument, which will amply show those who believe that the manufacturer of shoddy is an unimportant matter: "The shoddy used amounted to 75,000,000 pounds, in round numbers, during the census year 1900. The secured wool, excluding hulled wool, produced in the United States during the census year 1900 amounted to 101,000,000 pounds. The shoddy used in the same year amounted to nearly 75 per cent of the secured wool. Now, that is a very remarkable statement it seems to me; but it is supported by the statistics. As 60,000,000 pounds of wool produced only 161,000,000 pounds of secured wool, the cloth-producing power of the shoddy used was equal to the fleeces of 30,000,000 sheep. The farmers only had 40,000,000 of sheep in the United States during the census year 1900; and the cloth in the United States that represented a woolen goods, contained another product of vastly inferior value, which had a cloth producing power equal to 30,000,000 sheep. The products of the shoddy mills were 57,000,000 pounds in 1900 and represented 50,000,000."

I do not see what objections could be made to the present bill. You will remember that we have just passed a bill known as the oleomargarine bill. The advocates of that bill contended that the people of this country, the consumers of butter, had the right to be protected against what would be a fraudulent imitation of butter, the imitation being so perfect that the consumer could not tell when he purchased whether he was purchasing the real article or the imitation.

INFLUENCE OF THE RAM.

We have recently published several letters on the subject of twin lambs and the ram's influence on plurals births. Says James Arnold in the "Breeder's Gazette." It seems that all of the writers are somewhat at sea in the matter. A citation of a few scientific facts, perhaps, will help to clear up the matter a little. It is a fact well known to scientists that all our domestic animals are produced from eggs. That during the oestrus or heat period of the female, one or more eggs, according to the nature of the animal, pass from the ovaries into the uterus. If fertilized by the male at that time the oestrus does not return at its regular period, but a period of incubation ensues, according to the nature of the animal, to be followed by an external delivery of the foetus, called parturition. This delivery may with equal propriety be called the hatching period, as the only real difference between the incubating period between the mammalia and poultry is that in the mammalia the eggs are incubated internally and in the poultry externally, that in the mammalia the soft-shelled egg is protected during incubation by the body of the animal and the eggs of poultry are protected during incubation by an outer hard shell, the complete egg being inside of this shell for obvious reasons; that in the mammalia the foetus is nourished by continuous contributions through the umbilical cord, while in poultry the chick is nourished in the same way by stored-up material.

Another scientific fact is that the male has nothing whatever to do with the appearance of the oestrus in the female, or the duration of its period, or the number of eggs produced at any oestrus; the male simply fertilizes whatever eggs are present in the uterus. A hen will lay as many eggs without a male as with one and the oestrus will come and eggs pass down the fallopian tubes into the uterus of the mammal though no male of the same species is within a hundred miles, but the ova will not hatch without the influence of the male. It is clear, then, that the only influence of the male is in the fertilization of the eggs present in the uterus at each oestrus.

Another scientific fact is that by judicious feed and care the females in both our mammals and poultry can be stimulated to the production of an abnormal quantity of eggs during an oestrus and

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